

CLAIMS

What is claimed is:

1. (cancelled)

2. (cancelled)

3. (cancelled)

4. (previously amended) A battery charging system, comprising;

a current source;

a battery;

a voltage and current regulator which regulates voltage applied to said battery and current supplied to said battery and;

wherein said voltage and current regulator comprises: an adjustable band-gap voltage reference diode, a voltage divider potentiometer, a resistor, and a transistor;

said adjustable band-gap voltage reference diode in series with said resistor, said series resistor and said band-gap voltage reference diode connected across said current source and said battery, said adjustable band-gap voltage reference diode having a reference input;

said voltage divider potentiometer connected across said

current source and said battery, said voltage divider potentiometer having an output connected to said reference input of said adjustable band-gap voltage reference diode, and providing a reference input voltage at said reference input to said band-gap voltage reference diode; said transistor having an emitter and a collector connected across said current source and said battery, said transistor having a base connected to a junction between said series connected resistor and said band-gap voltage reference diode, said band-gap reference diode, said series resistor, and said transistor operating in conjunction with one another to regulate voltage applied to said battery and current supplied to said battery.

5. (currently amended) The battery charging system according to claim \pm 4, wherein said voltage and current regulator comprises: an adjustable shunt regulator, and a transistor operating in conjunction with said adjustable shunt regulator.

6. (currently amended) The battery charging system according to claim \pm 4, wherein said voltage and current regulator comprises: a shunt regulator, and a transistor operating in conjunction with said shunt regulator.

7. (currently amended) A battery charging system, comprising:
a current source;
a battery;
voltage regulator means, which regulates voltage applied to
said battery; and current regulator means, which regulates
current supplied to said battery; wherein said current
regulator means shapes said current supplied to said
battery; ~~and~~
wherein said current regulator means tapers said current
supplied to said battery- ; and
wherein said voltage regulator means comprises: an adjustable
band-gap voltage reference diode, a potentiometer, and a
resistor;
said adjustable band-gap voltage reference diode in series
with said resistor, said series resistor and said band-gap
voltage reference diode connected across said current
source and said battery, said adjustable band-gap voltage
reference diode having a reference input;
said voltage divider potentiometer connected across said
current source and said battery, said voltage divider
potentiometer having an output connected to said reference
input of said adjustable band-gap voltage reference diode,
and providing a reference input voltage at said reference
input to said band-gap voltage reference diode.

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (original) The battery charging system according to claim 10, wherein said current regulator means comprises: a transistor operating in conjunction with said adjustable band-gap voltage reference diode, and said resistor;

said transistor having an emitter and a collector connected across said current source and said battery, said transistor having a base connected to a junction between said series connected resistor and said band-gap voltage reference diode, said band-gap reference diode, said series resistor, and said transistor operating in conjunction with one another to regulate voltage applied to said battery and current supplied to said battery.

12. (original) The battery charging system according to claim 7, wherein said voltage regulator means comprises an adjustable shunt regulator.

13. (original) The battery charging system according to claim 12, wherein said current regulator means comprises a transistor operating in conjunction with said adjustable shunt

regulator.

14. (original) The battery charging system according to claim 7, wherein said voltage regulator means comprises a shunt regulator.

15. (original) The battery charging system according to claim 14, wherein said current regulator means comprises a transistor operating in conjunction with said shunt regulator.

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (cancelled)

26. (original) A battery charging system, comprising:

a current source;

a battery;

an adjustable band-gap voltage reference diode in series with a resistor, said series resistor and said band-gap voltage reference diode connected across said current source and said battery, said adjustable band-gap voltage reference diode having a reference input;

a voltage divider potentiometer connected across said current source and said battery, said voltage divider potentiometer having an output connected to said reference input of said adjustable band-gap voltage reference diode, and providing a reference input voltage at said reference input to said band-gap voltage reference diode; and

a transistor having an emitter and a collector connected across said current source and said battery, said transistor having a base connected to a junction between said series connected resistor and said band-gap voltage reference diode, said band-gap reference diode, said series resistor, and said transistor operating in conjunction with one another to regulate voltage applied to said battery and current supplied to said battery.

27. (original) The battery charging system according to claim 26, wherein further said battery charging system has a switch in series with said current source to control current supplied to said battery by switching said current source on or off.

28. (original) The battery charging system according to claim 27, wherein said switch is timer controlled.

29. (original) The battery charging system according to claim 28, wherein said timer controlled switch is a microcontroller.

30. (original) The battery charging system according to claim 26, wherein further said battery charging system has means for incorporating at least one additional reference input voltage at said reference input to said band-gap voltage reference diode

31. (original) The battery charging system according to claim 26, wherein further said battery charging system has at least one optoisolator, each said optoisolator having at least one input voltage, which activates said optoisolator and places an additional resistor in parallel with a portion of said voltage divider potentiometer connected across said current source and said battery, lowering said reference input voltage at said

reference input to said band-gap voltage reference diode, and providing an additional reference input voltage at said reference input to said band-gap voltage reference diode.

32. (original) The battery charging system according to claim 26, wherein said battery is a silver-based battery.

33. (original) The battery charging system according to claim 26, wherein said silver-based battery is selected from the group consisting of silver-zinc, silver-cadmium, and silver-nickel metal hydride.

34. (original) The battery charging system according to claim 26, wherein said battery is a high impedance battery.

35. (cancelled)

36. (cancelled)

37. (cancelled)

38. (cancelled)

39. (cancelled)

40. (cancelled)

41. (cancelled)

42. (cancelled)